**Additional Practice Problems - Unit 12**

**Quiz #1 –**

1. Decide if the following describe reversible reactions or completion reactions:
   1. A precipitate or gas is formed.
   2. Can reach equilibrium
   3. Reproduces reactants
   4. Reaction ends
   5. Exists is a dynamic state
2. Describe the concentration of reactants and products at the start of a reversible reaction as high or low. Describe the speed of the forward and reverse reactions as fast or slow at the start of a reversible reaction. Describe what happens to the rate of each over time until equilibrium is reached.
3. A Keq greater than 1 favors the \_\_\_\_ while a Keq less than 1 favors the \_\_\_\_.
4. Write the equilibrium expression for the following reaction.

Cu(s) + 2CO(g) 🡨 🡪 Cu(CO)2(g)

1. Calculate the Keq for the reaction below if [NH3] = 0.025 M and [HCl] = 0.0150 M.  
   NH4Cl(s) 🡨🡪 NH3(g) + HCl(g)

**Quiz #2 –** 1. In the reaction **A + B 🡨🡪 C + D**, what direction will the reaction shift if   
 chemical C is removed?  
 2. In the reaction: **A (g) + 2 B (g) 🡨🡪 C (g)**, which direction will the reaction shift   
 if the volume is decreased?

3. What does “Equilibrium is a state of dynamic molecular behavior” mean?  4. Fe3+ + SCN1- 🡨 🡪 FeSCN2+  
 (Light Yellow) (Deep Red) a. Decreasing [Fe3+] causes what change? b. AddingFe3+ to the reaction causes what change? c.If this reaction became a lighter yellow color when placed in an ice bath, the   
 reaction must be endothermic or exothermic?  
 5.In the reaction **N2O4 (g) 🡨🡪2 NO2 (g)**, increasing the volume would make the   
 reaction \_\_\_.

6. In the reaction, **CO (g) + NO2 (g) 🡨🡪CO2 (g) + NO (g)**, what two changes could be   
 made to cause the formation of more reactants?

**Quiz #3 –**

1. Write the reaction and Ksp expression for Ba(NO3)2 as it dissolves in water.
2. Which aluminum-containing compound is most soluble?
   1. Aluminum hydroxide (Ksp = 3.0 x 10-34)
   2. Aluminum phosphate (Ksp = 9.84 x 10-21)